Ohm measurement circuitry

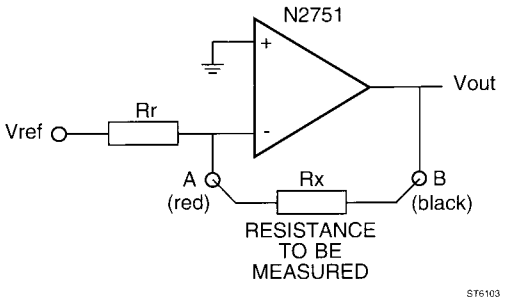

Figure 3.13 Ohm measurement circuitry (principle of operation)

The resistance R_x to be measured is connected as a feedback resistor of an amplifier circuit (opamps N2751). The output voltage of this measuring amplifier is proportional to resistance R_x:

$$V_{out} = (V_{ref}/R_r) \times R_x$$

The different ranges are obtained by selecting different values for resistor R_r . This can be done with the Ohm range selection circuit (D2750 and surrounding resistors), which is controlled by the Analog Control circuitry (circuit diagram A2a, figure 10.5, B-OFFSET lines).

Table 3.5 Ohm range selection circuit control lines

RANGE	Sc15	Sc16	Sc17	Sc18
300Ω	1	0	1	0
3kΩ	1	0	1	0
30kΩ	1	0	0	0
300kΩ	1	1	0	0
3MΩ	0	1	0	0
30MΩ	0	1	0	0

Switches D2751 choose between the mV DC voltage and the voltage from the Ohm circuit. The outputs of these switches are connected to the L.F. part of the channel A attenuator (circuit diagram A2a, figure 10.5).

Diode measurement circuitry

While in DIODE METER mode, the ScopeMeter uses the same circuitry as in OHM mode.

WARNING: The BLACK terminal is not connected to the BNC grounds, while in OHM or DIODE METER mode! While in OHM er DIODE METER mode, the ScopeMeter can not be grounded via the BLACK banana terminal.

EXTernal triggering

The trigger signal is fed to the A-ASIC on A2a (figure 10.5) via resistor R2750 and voltage divider R2753/R2754 (see circuit diagram A2b, figure 10.6). It is also possible to trigger on the signal made by the generator. Then the trigger signal is made out of the signals STIMUL and G-OUTP by D2850, V2758, and related components.

Generator signal

The output of the generator (see paragraph 3.4.7) is sent to the EXT banana terminals via K2751b, K2750a and R2750.